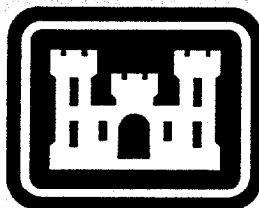


FINAL

Public Involvement and Response Plan
during
Installation Restoration Program Activities
at Unit 2

Redstone Arsenal, Alabama

Prepared for:



U.S. ARMY CORPS OF ENGINEERS
Savannah District

Contract No. : DACA 21-91-D-0024
Delivery Order No. 0007

SEPTEMBER 29, 1993

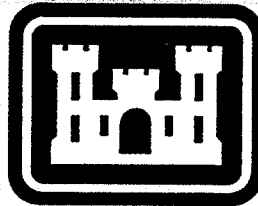
EBASCO ENVIRONMENTAL
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UNDER
CONTRACT NO. DACA 21-91-D-0024
EBASCO SERVICES INCORPORATED**

**FINAL
PUBLIC INVOLVEMENT AND RESPONSE PLAN
DURING INSTALLATION RESTORATION ACTIVITIES
AT UNIT 2**

REDSTONE ARSENAL, ALABAMA

SEPTEMBER 1993

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SECTION 1.0 INTRODUCTION

Redstone Arsenal (RSA), in Madison County, Alabama, is evaluating past waste management practices at its facility. These studies are currently being performed in accordance with the requirements of the Resource Conservation and Recovery Act of 1976, with Amendments (RCRA), with oversight by the U.S. Environmental Protection Agency (EPA) and the Alabama Department of Environmental Management (ADEM). RCRA requires corrective action at any solid waste management unit (SWMU) which is releasing hazardous constituents to the environment. Six SWMUs were identified at Unit 2, the Open Burn/Open Detonation Area at Redstone Arsenal, during a RCRA Facility Assessment (RFA).

The U.S. Army Missile Command (MICOM) Environmental Management Office of Redstone Arsenal has tasked the U.S. Army Corps of Engineers (USACE) Huntsville Division to further investigate the Unit 2 site. The RCRA Facility Investigation (RFI) has been completed and a corrective measure study (CMS) is in progress. The USACE Savannah District has been tasked to conduct an Interim Remedial Action (IRA) at Unit 2. This project involves the design and construction of an Interim Corrective Measure (ICM) to mitigate groundwater contamination.

The objective of this Public Involvement and Response Plan (PIRP) is to describe the needs and opportunities for public involvement and the associated activities which will be implemented during the performance of the installation restoration projects taking place at Unit 2. For the reader's convenience, a fold-out listing of abbreviations and acronyms is provided at the end of this document.

1.1 PLAN PURPOSE

This PIRP supplements the Installation Community Relations Program (CRP) developed for the Army activities which are performed under the Defense Environmental Restoration Program (DERP) at Redstone Arsenal. The PIRP addresses the implementation of those community relations activities which are considered appropriate for a specific site, area or collection of sites. The Installation CRP identifies the MICOM Public Affairs Office at Redstone Arsenal as

responsible for implementing the program and presents the contacts and resources established by Redstone Arsenal for use during Installation Restoration Program (IRP) activities under DERP.

The PIRP is not intended to be an independent document. It is to be used in combination with the established Installation CRP. These two documents provide a comprehensive information and participation program and the specific plan for an effective community participation program during Unit 2 IRP activities. This PIRP identifies the techniques for addressing the public's information needs and public involvement in the decision-making process at Unit 2 by referring to appropriate CRP activities.

The PIRP is designed to establish an effective communications link among the responsible USACE and Redstone Arsenal personnel, and any affected on-post and off-post communities relevant to Unit 2. To provide these communities with opportunities to respond to current and accurate information, the plan at Unit 2 is structured around the following goals:

- To identify a single point of contact at Redstone Arsenal in order to assure a consistent source of factual data and consolidation of Unit 2 updates.
- To inform the affected and interested communities about the IRP process of DERP in general and specifically how it relates to the Unit 2 site and the surrounding community.
- To inform the community about activities that have been and are expected to be conducted at the Unit 2 site as well as the schedule for planned activities.
- To address any concerns raised by the community and discuss with the community the data collected from Unit 2 investigations, corrective measure studies and other applicable studies.

- To disseminate information to the State of Alabama, Madison County, and other local and federal officials regarding the activities conducted at Unit 2.
- To maintain open communications with appropriate government personnel and community representatives so that they may better inform their constituents.

1.2 PIRP ORGANIZATION

This final PIRP is based on documents provided by the USACE, interviews with MICOM Public Affairs and Environmental Management Office representatives, and telephone interviews with local officials and community representatives.

In order to gain an understanding of the community perceptions regarding environmental restoration at Redstone Arsenal, specifically Unit 2, initial contacts were made with local and state officials. These contacts were used to identify appropriate agencies, members of the public and other interested parties. Initial listings of public contacts, potentially interested parties, and news media contacts and resources are included as appendices to the Installation CRP. The listings will be expanded with the aid of public notices which provide for the addition of names to the mailing list. No private citizens have been contacted at this time.

This PIRP provides the following overview:

- Site Background,
- Community Profile and Key Issues of Concern, and
- Public Involvement and Response Plan (Activities and Schedule).

1.3 POINTS OF CONTACT

Ms. Pamela Rogers, MICOM Public Affairs Specialist at Redstone Arsenal, oversees and is the point of contact for all community relations and media relations activities at the Unit 2 site. The USACE Savannah District has assumed lead responsibility for all technical activities during the

ICM design at Unit 2. The USACE Huntsville Division has lead responsibility for technical activities during the CMS. These technical activities are coordinated and managed by Savannah District Technical Manager, Ms. Juana Torres-Perez and Huntsville Division Technical Manager Ms. Dorothy Richards. All PIRP activities are coordinated with Mr. Jim Parker, Chief, USACE Savannah District Public Affairs Office, with Redstone Arsenal technical representation at IRP sites through Mr. Bill Schroder, MICOM Environmental Management Office at Redstone Arsenal.

Redstone Arsenal personnel Mr. Frank Copeland, Director of Logistics, and his assistant Mr. Todd Hutto are responsible for overall operations at the Unit 2 site. Mr. Harold Lenz, Chief of the Ammunition Division, has direct operations responsibility at Unit 2. Mr. Garrett Whalen is the Branch Chief of the Explosive Storage and Demolition Area. Mr. Carl Green is the Foreman at Unit 2. Three additional employees oversee daily activities at Unit 2.

Mr. Bill Schroder, MICOM Environmental Management Office at Redstone Arsenal, is the environmental point of contact for all IRP sites. Environmental concerns regarding RCRA risk management of hazardous wastes at Unit 2 are coordinated with Mr. Doug Slauson of the same office.

Contractors at the site do not have authority to provide information to the public. All questions or concerns regarding Unit 2 site conditions are to be referred to Ms. Pamela Rogers. Requests for information concerning the Unit 2 activities and contracts will be coordinated by the MICOM Public Affairs Office at Redstone Arsenal with the appropriate Army representatives identified in Appendix A.

Redstone Arsenal was proposed for inclusion on the U.S. EPA's National Priorities List (NPL) on June 23, 1993. While EPA is not the lead agency at a Federal facility site, a Federal Facility Agreement or other interagency agreement (IAG) would be negotiated for determining coordination of the Army, EPA and ADEM roles in the IRP should Redstone Arsenal be listed. It has not been determined at this time what impact the proposed or actual listing on the NPL

will have on the decisions to be made regarding environmental restoration activities, including community relations activities, currently being performed at Redstone Arsenal.

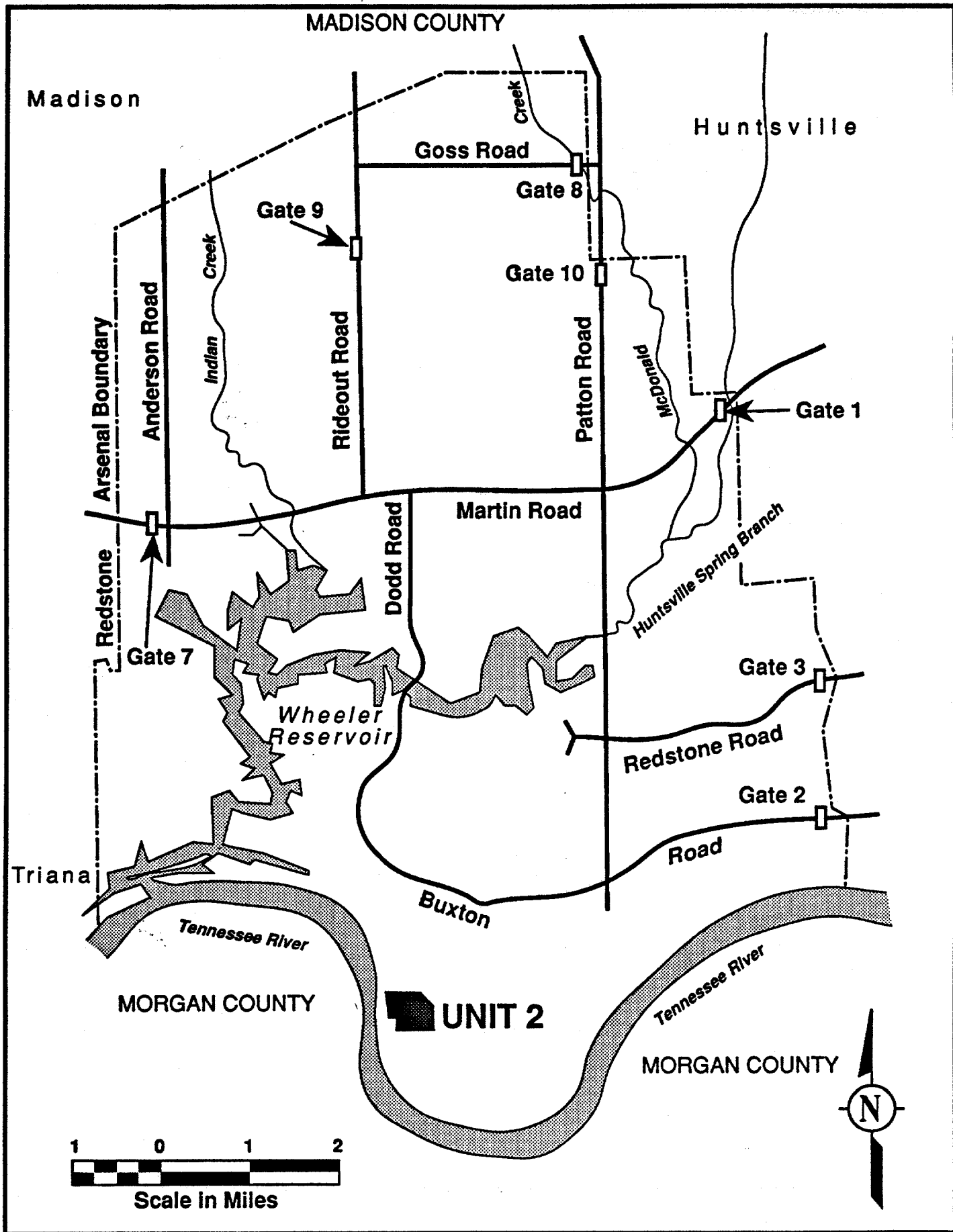
SECTION 2.0 SITE BACKGROUND

2.1 SITE LOCATION AND DESCRIPTION

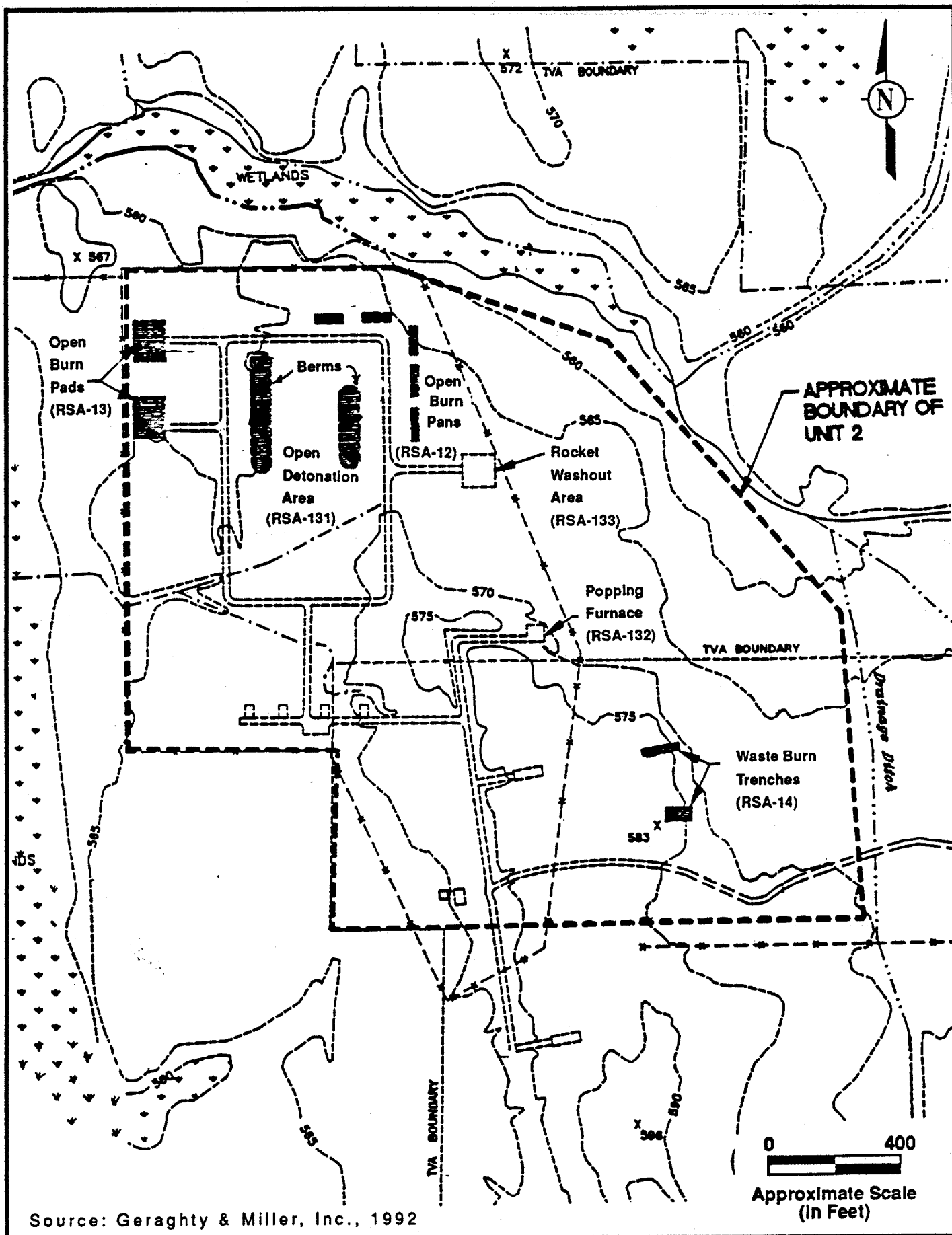
Unit 2 is the active Open Burn/Open Detonation (OB/OD) Area shown in Exhibit 1 which occupies approximately 89 acres in the isolated southern portion of Redstone Arsenal near the Tennessee River. The Unit 2 OB/OD Area is comprised of six SWMUs used for the disposal of explosive and explosive-contaminated wastes. The Waste Burn Trenches (RSA-14) and the former Popping Furnace (RSA-132) are in the southeast portion of the site. The Open Burn Area, consisting of the elevated OB pans (RSA-12) and the unlined OB pads (RSA-13), the Open Detonation Area (RSA-131), and the Rocket Washout Area (RSA-133) are in the northern portion. The site layout is shown as Exhibit 2. The northern half of the OB/OD Area lies on property owned by the Tennessee Valley Authority (TVA). The property north, west, and northeast of Unit 2 is also owned by TVA. All Redstone Arsenal related activities performed on TVA property are first coordinated with and approved by the appropriate TVA representative.

Unit 2 currently supports Redstone Arsenal through the disposal of explosives and explosive-contaminated wastes from the production of missile rocket motors and munitions-related materials, and Redstone Arsenal laboratories and test ranges. The production of guided missiles and rocket motors at Redstone Arsenal started in 1950. Trichloroethylene (TCE) was used as the degreasing agent for cleaning and flushing rocket motor equipment. TCE was originally disposed of at Unit 2 into the Waste Burn Trenches (RSA-14). Open burning of the waste solvent was the only acceptable disposal method from 1955 until 1980 due to the presence of explosive propellants.

These Waste Burn Trenches (RSA-14) in the southeastern portion of Unit 2 were originally designed for incineration of packaging and pallets used to ship munitions. In 1984, it was discovered that the two trenches had also been used to dispose of and burn waste solvents contaminated with propellants. These activities were terminated, and by 1991, the use of these trenches to incinerate packaging and pallets was also terminated.



**EXHIBIT 1 LOCATION OF UNIT 2
REDSTONE ARSENAL, ALABAMA**



**EXHIBIT 2 UNIT 2 - OPEN BURN / OPEN DETONATION AREA
REDSTONE ARSENAL, ALABAMA**

At RSA-12, five elevated OB pans are currently used to dispose of reactive wastes by thermal treatment. The reactive wastes include bulk propellants, propellant-contaminated solvents and nonhazardous propellant-contaminated waste such as rags and wood containing four percent or less propellant. RSA-13, which consists of two unlined open burn pads, was routinely used for open burning from 1950-1986. Open burning on the ground at RSA-13 is no longer conducted; burning takes place in the elevated open burn pans at RSA-12. A sixth temporary elevated open burn pan is currently situated on top of one of the burn pads at RSA-13 for flash burning of wood. The temporary pan is not shown on Exhibit 2.

Explosives and explosive-contaminated materials are disposed of by detonation on site between two berms in the Open Detonation Area (RSA-131) on the northern portion of Unit 2. Detonations are performed on the land surface or underground depending on the material to be disposed and the amount of explosives necessary to perform the detonation. Holes approximately four feet deep are used for subsurface detonations. A maximum of 25 pounds of explosives may be detonated in each of five firing points at any one time. This limit has reportedly eliminated any noise impact off-site from Unit 2 OD activities.

The former Rocket Washout Area (RSA-133) and the former Popping Furnace (RSA-132) are considered not to have contributed to contamination of the Unit 2 site. These two areas are addressed in the CMS but are not included in the Unit 2 ICM design.

2.2 REGULATORY HISTORY AND PREVIOUS STUDIES

Unit 2 has been regulated as a "miscellaneous unit" under Chapter 40 of the Code of Federal Regulations (CFR), Part 264, RCRA Subpart X. An application for a RCRA Part B permit for hazardous waste disposal at Unit 2 has been submitted and is pending approval by the EPA.

In January 1986, Redstone Arsenal received a Notice of Violation (NOV) from the state regulators (ADEM) following an inspection in June 1985 of the Unit 2 burning areas. During the inspection, ADEM observed that solvent was burned on unprotected ground at Unit 2. ADEM recommended the installation of monitor wells in both the overburden and bedrock to

assess the extent and nature of potential groundwater contamination resulting from burning activities in the Open Burn Area and the Waste Burn Trenches (RSA-14).

The U. S. Army Environmental Hygiene Agency (USAEHA) was conducting a hazardous waste investigation of soil contamination at the Open Burn Area and Waste Burn Trenches at about the same time that Redstone Arsenal received the 1986 NOV from ADEM. In response to the NOV and USAEHA investigation, Redstone Arsenal ceased the burning of liquids on unprotected ground, investigated the potential for groundwater contamination resulting from disposal operations at Unit 2, and evaluated remedial alternatives. The USACE Huntsville Division, acting on behalf of Redstone Arsenal, contracted P. E. Lamoreaux and Associates (PELA) to perform an RFI-type study at Unit 2 and several other Redstone Arsenal SWMUs. The results of the study are contained in the 1988 report "Remedial Investigation Engineering Report, Redstone Arsenal, Alabama, Unit 1 - DDT and Sanitary Landfills and Unit 2 - Open Burn/Open Demolition Area."

During the Unit 2 investigations (USAEHA, 1986 and PELA, 1988), a total of 37 monitor wells, including 20 shallow overburden wells, 12 deep overburden wells, and 5 bedrock wells were installed. Three of these shallow overburden wells were installed for purposes of characterizing groundwater for an area located east of and adjacent to Unit 2. Soil samples and groundwater samples from wells which were collected near the Waste Burn Trenches (RSA-14) were found contaminated with volatile organic compounds (VOCs), base/neutral/acid extractables (BNAs), and metals. Explosives also were detected in one of the groundwater samples. VOCs, trace concentrations of BNAs, and explosives were detected in soil samples from the Open Burn Area pads (RSA-13). VOCs were detected in groundwater samples from monitor wells located west of the pads and in the immediate vicinity of the open burn pans (RSA-12). Soil samples near the pans did not have detectable contaminants.

Soil and groundwater sampling were not conducted within the Open Detonation Area (RSA-131). However, explosives were detected in soil samples collected at the Open Burn Area (RSA-13) located northwest of the Open Detonation Area. Soil sampling indicated that the area around the Popping Furnace and Rocket Washout Pad could possibly be sources of contamination. One

of the reports indicates that surface water analyses for VOCs and BNAs showed that none of these constituents were detectable in the surface waters at Unit 2. The PELA Study concluded that organic contaminants at Unit 2 were highest in the monitor wells downgradient from the Waste Burn Trenches.

In September 1989, USACE Huntsville Division contracted Geraghty & Miller (G&M) to perform an RFI at Unit 2. The purpose of the Unit 2 RFI was to delineate the contamination plume at the Open Burn Area, Open Detonation Area and Waste Burn Trenches. The RFI was conducted in two phases. Results of the Phase I RFI are contained in the 1991 report "Phase I Report, RCRA Facility Investigation at Unit 1, Unit 2, and Selected Unit 3 Areas, Redstone Arsenal, Alabama." Results of the Phase II RFI are presented in the 1992 report "Phase II Addendum, RCRA Facility Investigations at Unit 1, Unit 2, and Selected Unit 3 Areas, Redstone Arsenal, Alabama."

G&M installed 19 bedrock wells and 28 monitor wells during their Phase I and Phase II field investigations. Samples were collected from the 28 newly-installed monitor wells, and from the 37 wells previously installed by USAEHA and PELA, for use in delineating the horizontal and vertical extent of groundwater contamination at Unit 2. G&M also performed a Health and Environmental Assessment to evaluate potential contamination exposure routes.

The results of the RFI indicate that VOCs, BNAs, and explosives to a lesser degree were present in the groundwater at concentrations which exceeded systemic and/or carcinogenic (cancer-causing) criteria. TCE is the primary constituent, with concentrations as high as 120,000 parts per billion (ppb). The extent of contamination in the groundwater has been mostly defined with the exception of groundwater contamination in the upper bedrock south of Unit 2. However, contaminants are not known to have migrated beyond the site boundary.

BNAs and VOCs (principally TCE and associated chlorinated hydrocarbons) exceeding health criteria were detected in the deeper soils. The extent of soil contamination in the vicinity of the Open Burn Area has been relatively well defined. In the vicinity of the Waste Burn Trenches, however, the extent of contamination is not as well defined. Constituents of concern, mostly

chlorinated hydrocarbons and volatile organic aromatics, occurred in every boring associated with the Waste Burn Trenches (RSA-14).

Although constituents of concern were detected in subsurface soils and groundwater, the health exposure pathway analysis indicated that the probability is low that people would contact the subsurface soils or groundwater and be exposed to site contaminants. No constituents exceeding either systemic or carcinogenic criteria were detected in surface soils, surface waters, sediments and air. No interim or expedited remedial measures were recommended by G&M for Unit 2 at that time in accordance with the findings of the RFI. However, on March 27, 1992, ADEM issued a second NOV to Redstone Arsenal directing that corrective measures be implemented at Unit 2.

2.3 INTERIM CORRECTIVE MEASURE DESCRIPTION

The USACE Savannah District has tasked Ebasco Services Incorporated (Ebasco) to prepare interim remedial design documents pertaining to the ICM at Unit 2. The ICM for Unit 2 is focused on accomplishing both short-term and long-term goals. The ICM design is for a groundwater interception system which collects groundwater from the Unit 2 site and directs it to a treatment plant. The treatment plant will treat the groundwater to remove contaminants and will direct treated effluent to nearby surface water. In the short-term, aggressive interim groundwater remediation efforts are anticipated to start within a few months of ICM design completion and upon award of a construction contract. On a longer-term basis, the ICM will provide important design data to be used in the final corrective measure design.

The proposed ICM for Unit 2 will consist of groundwater extraction using extraction wells and pumps, treatment of extracted groundwater to remove or destroy organic contaminants using the advanced oxidation process, and on-site discharge of treated groundwater. Operation of the ICM is expected to continue at least through procurement for final corrective measures. The final corrective measure may or may not utilize the ICM installation, depending upon the most cost effective approach to the final cleanup remedy.

2.4 CORRECTIVE MEASURE STUDY

Upon completion of the RFI by G&M in 1992, the USACE Huntsville Division tasked Environmental Science & Engineering, Incorporated (ESE) to perform a "streamlined" CMS. The draft CMS examines 10 areas, including Unit 2, and is currently under review by the EPA. The CMS identifies and recommends alternatives for the final remediation of contaminated media (soil, sediment, and groundwater) in each study area. The preferred alternative currently proposed for final correction at Unit 2 is groundwater treatment by air stripping, and soil treatment by excavation/on-site incineration. Upon approval of the draft CMS by the Huntsville Division, the Draft Final CMS and the preferred alternative or Proposed Plan will be available for public review and comment. Public involvement will include a public meeting presentation. The Final CMS will address any technical comments presented which were not addressed in the draft version. All public comments received during the public comment period will be responded to in the Responsiveness Summary and considered in the Record of Decision of the final remedial alternative selected.

SECTION 3.0 COMMUNITY PROFILE AND KEY ISSUES OF CONCERN

3.1 COMMUNITY PROFILE

Both the on-post and off-post communities may be interested in the activities at Unit 2. The on-post community includes the operations and management personnel listed in Appendix A. Employees involved with Unit 2 operations are trained in health and safety and receive regular briefings regarding site operations and activities. Because of the isolated location and control of the activities at Unit 2, adjacent or nearby operations are not impacted. However, other on-post personnel have expressed an interest in being kept informed of the activities and findings at Unit 2 due to their supporting roles in the operation of Unit 2. Still other Redstone Arsenal employees may wish to learn about Unit 2 site activities.

The off-post community which would likely have the most interest in Unit 2 activities is the community of Triana, approximately four miles downstream of Unit 2 along the Tennessee River. Triana would be the first off-post recipients of any potential contamination which could leave the installation via surface or groundwater. Triana has been directly impacted and involved in the Triana/Tennessee River Superfund site which entailed the contamination of surface waters and fish with dichloro-diphenyl-trichloroethane, commonly referred to as DDT, which was produced on Redstone Arsenal by the Olin Corporation until 1970. Due to the ingestion of DDT-contaminated fish, the health of some residents of Triana is being monitored by the Agency for Toxic Substances and Disease Registry (ATSDR). Affected residents are being treated for DDT contamination by state health agencies. Accordingly, the community will likely be sensitive to and interested in the findings and activities on Redstone Arsenal upstream of their town.

3.2 PREVIOUS COMMUNITY INVOLVEMENT AND COMMUNITY RELATIONS ACTIVITIES

Community relations between Redstone Arsenal and the surrounding communities were established upon recognition of the DDT impacts off-site in Triana in 1978. Then in 1989,

additional reports were produced regarding the results of investigations at numerous SWMUs on Redstone Arsenal, including Unit 2. At that time, the Installation Commander met with the Huntsville-Army Community Relations Committee to discuss the status of the SWMUs and local elected officials and health representatives were also informed. In early April 1989, Redstone Arsenal invited the local newspaper and television reporters for a press briefing and tour of representative sites. Numerous articles were published at that time.

There have been few queries from the public or the press since that time until May 24, 1993 when a news article about the cleanup activities at Redstone Arsenal was published. Unit 2 was among the sites described, although the site locations and names were not provided. Further articles were released to the public in July 1993 regarding the proposal to include Redstone Arsenal on the NPL.

A fact sheet describing the corrective measures being implemented at Redstone Arsenal, including Unit 2 activities, was provided to the public at the Olin DDT public meeting on July 15, 1993 in Triana. This fact sheet is included in Appendix B. There has been no negative publicity or public response to the findings to date. Redstone Arsenal is anxious to present specific plans to the public regarding the actual restoration as determined from the investigations.

3.3 KEY ISSUES OF CONCERN

Community concern regarding contamination at Redstone Arsenal and the associated environmental restoration program generally appears to be low in the Huntsville and Madison County communities. The long term presence of the installation and the close connection between the mission at Redstone Arsenal and the economy of the area tends to increase the public's acceptance of any activities which may create inconveniences or concerns. Based on news media response, it appears that the community generally perceives that Redstone Arsenal is working effectively with regulatory agencies and is responding appropriately to identify and remediate contamination at the installation in order to protect the environment and health of the community.

The community of concern regarding Unit 2 activities is the downstream town of Triana. Considering their previous exposure to contaminants emanating from the installation property, there is a continued sense of concern that contamination from these activities at Redstone Arsenal that are located near waterway could reach their community. When contacted about information needs regarding Unit 2 in November 1992, Triana Town Council members were not aware of additional contamination areas at Redstone Arsenal upstream from their community. The Town Council members expressed the desire that their community be kept informed of any potential upstream contamination.

Potential issues during Unit 2 ICM and CMS activities will more likely come from the Triana residents and the federal agencies performing ongoing monitoring in the surrounding waterways. In addition, workers at Unit 2 may become concerned about potential exposure to contamination. Presently, only three issues have been expressed regarding Unit 2 during conversations with local representatives: health concerns, the availability of information, and fish and wildlife protection.

Health Concerns - Health concerns present the greatest concern to Triana residents who have daily wondered when, if and for how long have they been exposed to contaminants and what may be the potential health impacts. Some Triana residents have been under an ongoing medical surveillance program funded by Olin Corporation and under the review of the ATSDR. The perception that contamination identified upstream of their community presents the potential for additional exposure, may add mental stress to an existing reality of impacted health. ATSDR plans to perform a health assessment if the installation is included on the NPL.

Availability of Information - Triana is presently the location of the information repository for the Olin DDT contamination project, and Triana desires an active role in future involvement with Redstone Arsenal. Town representatives have requested that Redstone Arsenal establish an information repository at Triana Town Hall for upstream Redstone Arsenal investigations.

The opportunity to readily investigate and ask questions can remove the fear of the unknown. Ready access to information allows more fruitful participation in the decision-making process.

Fish and Wildlife Protection - Unit 2 is located south of the Wheeler National Wildlife Refuge, but upstream along the Tennessee River which borders the Refuge. The U.S. Fish and Wildlife Service is interested in assuring that their jurisdiction is protected and wants to be kept informed of site findings and activities.

All questions from the public will be directed through the MICOM Public Affairs Office at Redstone Arsenal so that they may monitor information needed and provide news releases to the public, when appropriate. Other points of contact and coordination specific to Unit 2 activities are provided in Appendix A.

SECTION 4.0 PUBLIC INVOLVEMENT AND RESPONSE PLAN

4.1 CRP IMPLEMENTATION

The Installation CRP is implemented at Unit 2 through this PIRP. The information and references of the CRP are applied at Unit 2 except as modified or supplemented by this PIRP. The MICOM Public Affairs Office at Redstone Arsenal is responsible for the implementation of these activities as required by IRP mandates or any IAGs, and as appropriate to meet community needs.

4.2 ACTIVITIES

The following activities are proposed for implementation during the Unit 2 CMS and the Unit 2 ICM design, installation, and operation at Redstone Arsenal.

4.2.1 Points of Contact

Ms. Pamela Rogers, Public Affairs Specialist, MICOM Public Affairs Office, is the Redstone Arsenal point of contact. In coordination with the USACE Savannah District Public Affairs Officer, she will inform the responsible official(s) of activities, findings, and other developments on an ongoing basis throughout the IRP activities at Unit 2. Ms. Rogers will identify the responsible technical contacts and assure that timely responses are provided to community inquiries.

4.2.2 Public Information Repository/Administrative Record

Suggested locations for an on-post and two off-post information repositories are identified in Appendix D of the Installation CRP. The repositories will contain the administrative record, the compilation of documents, data reports and other information that is important to the status of and decisions made relative to the site. The file will be updated as additional information

becomes available. An index for easy reference will be provided. State and federal regulatory agencies will also maintain a Unit 2 project file.

4.2.3 Public Meetings

A formal public meeting will be scheduled upon completion of the draft final CMS currently being developed for Redstone Arsenal by ESE. The CMS presents alternatives for final remediation of the Unit 2 site. Suggested locations for public meetings are provided in Appendix E of the Installation CRP. Additional locations will be identified if required to meet the specific meeting objectives.

4.2.4 Availability Sessions

Availability sessions may be made available at community centers or at local libraries, and may follow a presentation, or perhaps an introduction made at a local club or other civic organization gathering. Availability sessions are appropriate when small audiences are anticipated for activities such as Unit 2 IRP progress updates. These informal gatherings may be particularly effective to discuss ICM design, installation and operations, or during the public comment period to further discuss individual questions or technical detail of the CMS and the "proposed plan" (preferred alternative).

4.2.5 Fact Sheet Distribution

To inform the community of Unit 2 activities and findings during IRP activities, fact sheets may be prepared, as appropriate. The Redstone Arsenal may send fact sheets directly to interested community residents, interested parties, media contacts, and applicable local officials, when appropriate. Anyone wishing to be added to the mailing list may contact the MICOM Public Affairs Office at Redstone Arsenal to request inclusion on the list. Based on the draft CMS prepared for final remediation of Unit 2, a "proposed plan" for final remediation will also be presented in a fact sheet format for public comment.

4.2.6 News Releases

Regular status updates of Unit 2 progress should be provided in the installation *Redstone Rocket* and the local *Huntsville Times* newspapers, and the other media resources. News releases should support public notices and encourage public comment and participation. During the final ICM design stage of the project, a news release will provide information contained in the design report, future construction plans and the establishment of the information repository with availability of pertinent documents. A second news release shall go out when there is significant activity on site, prior to the beginning of actual construction of the ICM. This release will discuss the components of the ICM and will contain the background and history of Unit 2.

4.2.7 Press Briefings

Press briefings may become appropriate should increased media attention or community concerns be noted. Press visits to the sites may be available but must be scheduled through the MICOM Public Affairs Office at Redstone Arsenal.

4.2.8 Public Notice

Public notices will be prepared during Unit 2 IRP activities to announce availability of documents in the information repository, or pertinent site activities, if necessary. A public notice will be made to announce the public meeting and comment period for response to the draft CMS and the Proposed Plan for final remediation at Unit 2, and later to the Record of Decision.

4.2.9 Public Comment Period/Responsiveness Summary

The public comment period will be announced by a public notice of the availability of the draft CMS and of the Record of Decision. A minimum of 30 days is allowed for written and oral comments to be submitted. The comments and Army responses are summarized in the Responsiveness Summary and became part of the administrative record and the Record of Decision.

4.2.10 Technical Review Committee

A Technical Review Committee (TRC) can be established in accordance with Army Regulation 200-1 requirements if desired by community members and approved by the Redstone Arsenal Commander and/or as required by any IAGs. Typically chaired by the commanding officer, members are drawn from the MICOM Environmental Management and Public Affairs Offices at Redstone Arsenal, Army agency representatives, state regulatory agencies and local environmental and/or health agencies. Representatives from the existing Huntsville-Army Community Relations Committee and the Triana Review Panel for the Olin DDT contamination site should be included in TRC membership.

4.2.11 Revision of the PIRP

This Unit 2 PIRP should be reviewed and/or revised when there is a significant change in the involvement or concerns in the community, and upon announcement of the Record of Decision of the final remedial design based on the CMS. The revision of the PIRP will also address the Final Corrective Measure Design and implementation, and community response at the public meeting and during the public comment period. It should include an update and verification of the information within the PIRP, assessment of the effectiveness of the PIRP to date, and determination of appropriate methods for the future roles of the community during final remedial design, installation, operation and maintenance phases. Community interviews should be held before this Unit 2 PIRP is revised.

4.3 SCHEDULE

A tentative schedule for public involvement and response activities is presented in Exhibit 3. This schedule may need to be revised and updated to reflect NPL status, IAG requirements, Unit 2 IRP developments and community needs.

EXHIBIT 3
TENTATIVE SCHEDULE OF
PUBLIC INVOLVEMENT AND RESPONSE ACTIVITIES
AT UNIT 2
Redstone Arsenal, Alabama

Activity	Date
Establish Points of Contact	• August 1993
Establish Public Information Repository	• Update as Necessary
Public Notice	<ul style="list-style-type: none"> • Upon Document Availability in Repository • To Announce Public Meeting/Comment Period • To Announce Record of Decision
Fact Sheet Distribution	<ul style="list-style-type: none"> • As Required for Technical and Informational Explanations • Notification and Analysis of Proposed Plan
News Release	<ul style="list-style-type: none"> • In Support of Site Activities • Final Design Stage • Prior to ICM Construction
Public Comment Period/Formal Meeting	• Upon Release of the Draft CMS
Responsiveness Summary	• After Public Comment Period/Meeting
Availability Session/Gathering	• As Required, Particularly for ICM Design
Technical Review Committee	• If Requested
Review/Revise PIRP	• Upon Record of Decision for Corrective Measure

APPENDIX A
LISTING OF CONTACTS AND INTERESTED PARTIES
FOR UNIT 2 OB/OD AREA
Redstone Arsenal, Alabama

This listing is supplemental to the Installation Community Relations Program listing of public contacts and interested parties. A separate mailing list of concerned and interested private citizens is also kept by the MICOM Public Affairs Office at Redstone Arsenal for individuals not wishing to be identified on a public listing.

A. POINT OF CONTACT

Commander	(205) 842-0561
US Army Missile Command	(205) 955-0133 Fax
Public Affairs Office	
ATTN: AMSMI-IN (Pamela Rogers)	
Redstone Arsenal, AL 35898-5020	

B. ARMY CORPS OF ENGINEERS

ICM Design Technical Contact

Commander	(912) 652-5363
US Army Corps of Engineers	(912) 652-5311 Fax
Savannah District	
ATTN: CESAS-PM-H (Juana Torres-Perez)	
P. O. Box 0889	
100 West Oglethorpe Avenue	
Savannah, GA 31402-0889	

CMS Technical Contact

Commander	(205) 955-3088
US Army Engineer Division	(205) 955 -4664 Fax
ATTN: CEHND-PM-EP (Dorothy Richards)	
P. O. Box 1600	
106 Wynn Drive	
Huntsville, AL 35805-1957	

C. REDSTONE ARSENAL

Commander	(205) 876-4515
US Army Missile Command	
ATTN: AMSMI-RA-L (Frank Copeland)	
Redstone Arsenal, AL 35898	

Commander (205) 876-4515
US Army Missile Command
ATTN: AMSMI-RA-L (Todd Hutto)
Redstone Arsenal, AL 35898

Commander (205) 876-1332
US Army Missile Command
ATTN: AMSMI-RA-L-SU-ES (Garrett Whalen)
Redstone Arsenal, AL 35898

Commander (205) 842-6982
US Army Missile Command
ATTN: AMSMI-RA-L-SU-ES (Carl Green)
Redstone Arsenal, AL 35898

Commander (205) 876-0719
US Army Missile Command
ATTN: AMSMI-RA-L-AD (Harold Lenz)
Redstone Arsenal, AL 35898

Commander (205) 955-6972
US Army Missile Command
ATTN: AMSMI-RA-EH-EQ (Doug Slauson)
Redstone Arsenal, AL 35898

D. INTERESTED PARTIES

See Installation CRP for complete listing. No additional organizations or agencies have been identified at this time with particular interest in the Unit 2 OB/OD Area.

APPENDIX B
INSTALLATION RESTORATION PROGRAM FACT SHEET
Redstone Arsenal, Alabama

Corrective Measures at Units 1 & 2, Area F and RSA-G
July 1993



Redstone Arsenal

MADISON COUNTY, ALABAMA



INSTALLATION RESTORATION PROGRAM FACT SHEET

JULY 1993

CORRECTIVE MEASURES AT UNITS 1 & 2, AREA F AND RSA-G

This fact sheet is one in a series designed to inform residents and local officials of the Army's installation restoration program and interim corrective measures at Redstone Arsenal.

ARSENAL DESCRIPTION

Redstone Arsenal (RSA) is located in north central Alabama in the southwestern portion of Madison County. RSA is bounded by the City of Huntsville to the north and east, the cities of Madison and Triana to the west, and the Tennessee River to the south. RSA encompasses approximately 38,300 acres. The National Aeronautics and Space Administration (NASA) leases 1,841 acres for the George C. Marshall Space Flight Center. The Wheeler National Wildlife Refuge owns 4,100 acres and the Tennessee Valley Authority owns 2,900 acres within the boundaries of RSA.

RSA is under the jurisdiction of the U.S. Army Materiel Command, the major Army command responsible for insuring the weapons, equipment, and logistic readiness for the Army.

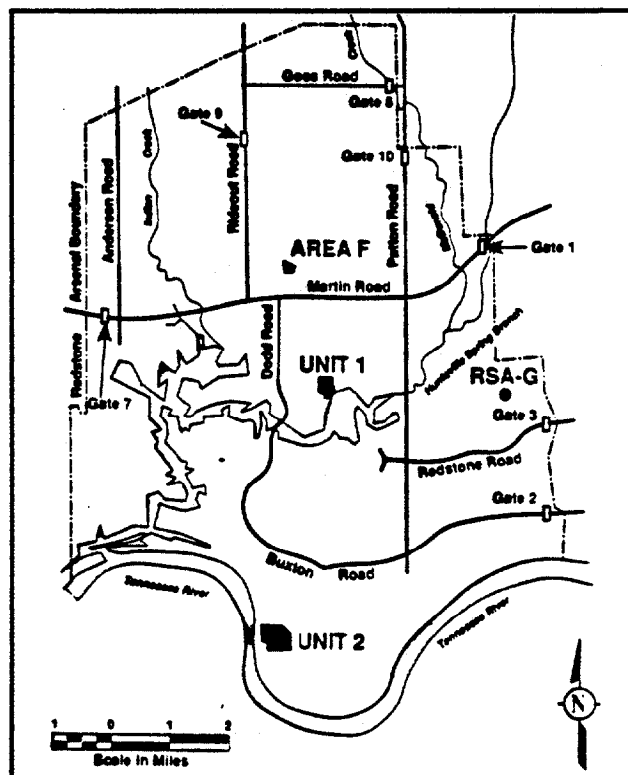
PURPOSE OF INTERIM CORRECTIVE MEASURES AT RSA

The U.S. Army has been evaluating past hazardous waste management practices at Redstone Arsenal. Studies are being performed to evaluate the practices in accordance with the requirements of the Resource Conservation and Recovery Act of 1976 (RCRA).

RCRA requires identification and corrective action at any solid waste management unit (SWMU) located on the installation which is releasing hazardous constituents to the environment. A SWMU is defined as any discernable waste management unit at a RCRA facility from which hazardous constituents might migrate, irrespective of whether the unit was intended for the management of solid and/or hazardous waste. This does not include units in which wastes have not been managed, product storage areas, or accidental spills from production areas.

In addition to RCRA, Congress established the Defense Environmental Restoration Program (DERP) in 1986. Under DERP, the Department of Defense (includes the Army) is required to identify, assess and remediate environmental problems, to protect the health and safety of installation personnel and the public, and to protect the quality of the environment. The portion of DERP applicable to real property currently controlled by the Army is the Installation Restoration Program (IRP).

In accordance with RCRA and DERP, Redstone Arsenal is implementing numerous corrective measures and interim corrective measures (ICMs) at SWMUs identified on the installation. These SWMU corrective actions are being performed under the IRP. This fact sheet addresses the ICMs to be implemented at four SWMUs: Unit 1, Unit 2, Area F and RSA-G.



LOCATION OF UNIT 1, UNIT 2, AREA F AND RSA-G

INTERIM CORRECTIVE MEASURE SITES

Unit 1 (RSA-10)

This SWMU is an active landfill comprised of two disposal facilities: a former sanitary landfill which is currently an active inert landfill; and the closed DDT Waste Soils Landfill. Unit 1 consists of approximately 68.5 acres bordered by woods to the north, another closed landfill to the east, wetlands and the Wheeler National Wildlife Refuge to the south, and NASA-leased land to the west. The area has been used for a variety of

wastes including household waste, waste oil, infectious waste, installation debris, asbestos, and ash from incinerated paper. A special SWMU constructed for the disposal of soils containing DDT waste is also located within the boundaries of this Unit. Contaminants identified in the groundwater include chlorinated hydrocarbons, benzene, toluene, ethylene and xylene, and various metals and pesticides.

Investigations at Unit 1 began in 1989 and a RCRA Facility Investigation (RFI) was completed in 1992. On March 27, 1992, the Alabama Department of Environmental Management (ADEM) issued a Notice of Violation to RSA directing that corrective measures be implemented. An ICM Design is currently being prepared to provide immediate treatment of contaminated groundwater using an air stripper followed by liquid phase carbon adsorption.

A Corrective Measure Study (CMS) also is underway for Unit 1. A CMS identifies alternatives for final corrective measures at a given site. The draft CMS for Unit 1 is under review by the Huntsville Division of the U.S. Army Corps of Engineers (USACE). The preferred alternative for final correction is groundwater treatment using advanced oxidation by ultraviolet light and hydrogen peroxide (UV/H₂O₂), and soil treatment by excavation/on-site incineration and capping.

Unit 2 (RSA-12, 13, 14, 131, 132, 133)

Unit 2 is an active open burn/open detonation (OB/OD) area located on the south end of RSA. This area is used for the disposal of explosives and explosive-contaminated materials. There are actually six SWMUs at Unit 2: the OB pans (RSA-12); unlined OB areas (RSA-13); waste burn trenches (RSA-14); OD area (RSA-131); former popping furnace (RSA-132); and former rocket washout pad (RSA-133). Explosives and volatile organic compounds (VOCs) were found in the soil layers at RSA-13 and -14, explosives were found in the sediment layer at RSA-14, and VOCs were found in the groundwater which exceed minimum action levels.

Environmental studies at Unit 2 began in 1989 and the RFI was completed in 1992. On March 27, 1992, ADEM issued a Notice of Violation to RSA directing that corrective measures be implemented. An ICM Design is currently being reviewed by the Savannah District of the USACE which will provide immediate treatment of contaminated groundwater using advanced oxidation with UV/H₂O₂. Additionally, a draft CMS is under review by the Huntsville USACE identifying alternative final corrective measures. The preferred alternative for final correction is groundwater treatment by air stripping and soil treatment by excavation/on-site incineration.

Unit 3/Area F (RSA-49)

Area F occupies approximately five acres in the center of RSA. Area F consists of three closed ponds used in the

1940s for the disposal of arsenic-contaminated waste from manufacturing facilities for Lewisite, a chemical blistering agent. Rubble and industrial wastes were used to fill the impoundments prior to the ponds being closed. The ponds were covered in 1977 and planted with grass and pine trees. Arsenic was found in the groundwater and soil, and polynuclear aromatic hydrocarbons (PAHs) were found in the soil.

Environmental studies began in 1989. The RFI was completed in 1992. On March 27, 1992, ADEM issued a Notice of Violation to RSA directing that corrective measures be implemented at Area F. An ICM Design is currently being prepared which will provide for placement of a clay cap over the former ponds and a fence around the area. A draft CMS is under review by the Huntsville USACE. The preferred final correction alternative for groundwater is pretreatment only, and for soil is no further action.

RSA-G

RSA-G is the area surrounding the Thiokol Degreaser at Building 7664. RSA-G is within the Thiokol Complex, a government-owned contractor-operated facility, located in the southeast portion of RSA. Groundwater and soil at this site is contaminated, primarily with trichloroethene (TCE).

Environmental studies at RSA-G began in 1989. Phase II of the RFI is now nearing completion. There is no outstanding ADEM Notice of Violation for RSA-G. An ICM Design is in progress which will provide immediate treatment of contaminated groundwater using advanced UV/H₂O₂ oxidation. To date, a CMS has not been initiated.

REQUEST FOR PUBLIC PARTICIPATION

A Community Relations Plan (CRP) or Public Involvement and Response Plan (PIRP) is required for all DERP properties that have sites included on or proposed for inclusion on the National Priorities List (NPL). Redstone Arsenal was placed on the proposed NPL on June 23, 1993 (Federal Register Vol 58, No 119). A CRP/PIRP is currently being prepared for the four sites specifically identified in this fact sheet: Unit 1, Unit 2, Area F and RSA-G. The CRP/PIRP will be implemented throughout the interim corrective measure design at these sites. The CRP/PIRP will then be reviewed and/or revised as appropriate to provide for public involvement throughout the corrective action phases.

Upon availability of a draft final CMS, a press release and public notice will announce the availability of the document during a 45-day public comment period including a public meeting. The public will be asked to

comment on the preferred and other alternatives from among those which were studied for the corrective action. Public meetings will be hosted by the MICOM Public Affairs Office and supported by the responsible USACE. Local, state and Army representatives will be invited. All issues will be discussed and the public will have an opportunity to ask questions directly to a panel of site investigators, as well as to the attending representatives.

PUBLIC INFORMATION

A public information repository has been established for public access to the data and reports regarding site investigations, studies, and other activities conducted under the RSA IRP. Reports are released to the repository in final form after regulatory review. Press releases and fact sheets will be included in the collection. The collection will be updated as information becomes available. The information contained in the repository is available through ADEM and on-site at the MICOM Public Affairs Office at Redstone Arsenal. The primary off-site location is:

Huntsville-Madison County Library
915 Monroe Street, SW
Huntsville, Alabama 35804 (205) 532-5957

The information may also be obtained through the:

Town Hall, Town of Triana
640 Sixth Street
Madison, Alabama 35758 (205) 772-0151

A public announcement will be made whenever copies of CRP/PIRP, ICM Design reports, CMS reports and other pertinent documents are available for public review at the information repositories. The local Huntsville newspapers will also be used for press releases and public announcements.

The Army encourages the public to visit the information repositories and attend any public meetings to become more knowledgeable about the environmental studies at RSA. If you did not receive this fact sheet in the mail and would like to be placed on a mailing list to receive future notices regarding the DERP activities, please complete the form at the bottom of this page and mail to the address below.

FOR FURTHER INFORMATION:

The following Army representative has been identified as the point of contact regarding Redstone Arsenal remediation activities under the DERP Program:

Mr. Ed Peters, Public Affairs Specialist
Public Affairs Office
U.S. Army Missile Command
Redstone Arsenal, Alabama 35898-5020

(205) 842-0560

Prepared for the U.S. Army Corps of Engineers, Savannah District, and Redstone Arsenal.

REQUEST FOR INCLUSION ON THE MAILING LIST REDSTONE ARSENAL DERP

Please print your mailing address here and return to the MICOM Public Affairs Office of Redstone Arsenal. You will receive notice of public meetings or environmental program status as it becomes available.

Name _____

My particular interests and/or
concerns are:

Affiliation _____

Address _____

City _____ State _____ Zip _____

Telephone (optional) _____

Comments:

**REQUEST OF INCLUSION ON THE MAILING LIST
REDSTONE ARSENAL DERP**

Please print your mailing address here and return to the MICOM Public Affairs Office of Redstone Arsenal. You will receive notice of public meetings or environmental program status as it becomes available.

Commander
U.S. Army Missile Command
ATTN: AMSMI-IN (Ms. Pamela Rogers)
Public Affairs Office
Redstone Arsenal, AL 35898-5020
(202) 842-0560

Please check one: ☐ Private citizen (non-public listing)
☐ Public organization/representative

Name: _____

Affiliation: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone (optional) _____

My particular interests and/or concerns are:

Other comments:

ABBREVIATIONS AND ACRONYMS

ADEM	Alabama Department of Environmental Management
AMC	U.S. Army Materiel Command
BNA	Base/neutral/acid extractable
CFR	Code of Federal Regulations
CMS	Corrective Measure Study
CRP	Community Relations Program
DDT	Dichloro-diphenyl-trichloroethane (insecticide)
DERP	Defense Environmental Restoration Program
EPA	U.S. Environmental Protection Agency
ESE	Environmental Science & Engineering, Incorporated
G&M	Geraghty & Miller
IAG	Interagency Agreement
ICM	Interim Corrective Measure
IRA	Interim Remedial Action
IRP	Installation Restoration Program, DERP
MICOM	U.S. Army Missile Command, AMC
NOV	Notice of Violation
NPL	National Priorities List
OB	Open burn
OD	Open detonation
PELA	P. E. Lamoreaux and Associates
PIRP	Public Involvement and Response Plan
ppb	parts per billion
RCRA	Resource Conservation and Recovery Act of 1976
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RSA	Redstone Arsenal
SWMU	Solid waste management unit
TCE	Trichloroethylene, also trichloroethene
TVA	Tennessee Valley Authority
USACE	U.S. Army Corps of Engineers
USAEHA	U.S. Army Environmental Hygiene Agency
VOC	Volatile organic compounds